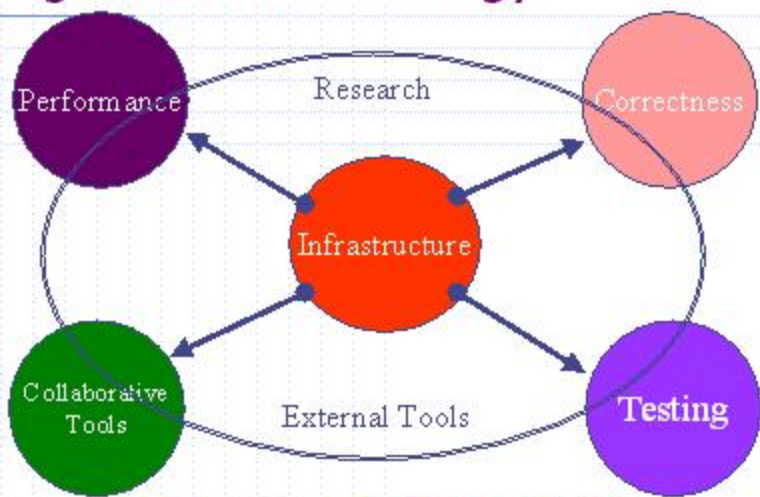




PPRC Performance Tools

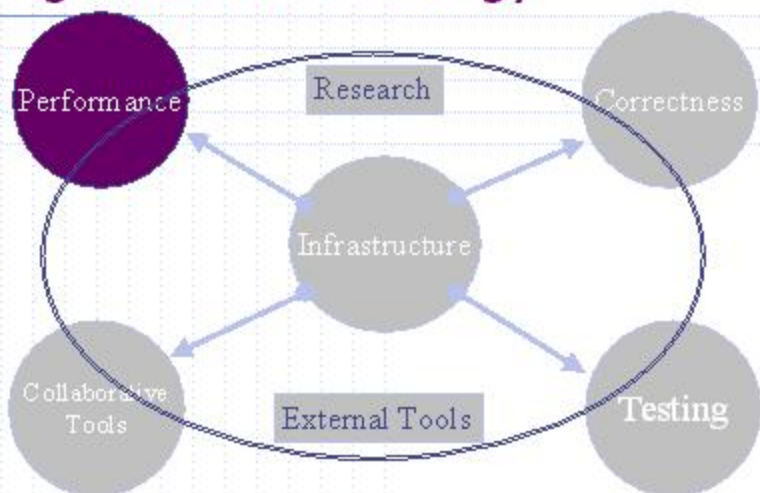
David Erb

Organization Strategy



Research, Build, Acquire, License and collaborate

Organization Strategy



Research, Build, Acquire, License and collaborate

PPRC Performance Team Goals

- ◆ Provide an ideal environment for performance tuning to radically improve the effectiveness of Microsoft product teams
 - Standard MS performance console
 - Enable more complete performance tuning
 - Reduce the effort associated with existing performance tuning practices
 - Lower the skill level required to do tuning
 - Share key technologies with MS product groups

Key IceCAP Technologies

- ◆ Post-link instrumentation
- ◆ Fast, scalable trace logging
- ◆ Fast, scalable trace analysis
- ◆ Fast, scalable symbol engine
- ◆ Flexible UI featuring:
 - Powerful trace and summary views
 - Performance navigation
 - Shadow stack analysis engine

IceCAP 4.1

DEMO

Current IceCAP Directions

- ◆ Kernel profiling
- ◆ Page fault profiling
- ◆ I/O profiling
- ◆ Registry profiling
- ◆ Additional platforms
 - IA 64, WinCE, COM+

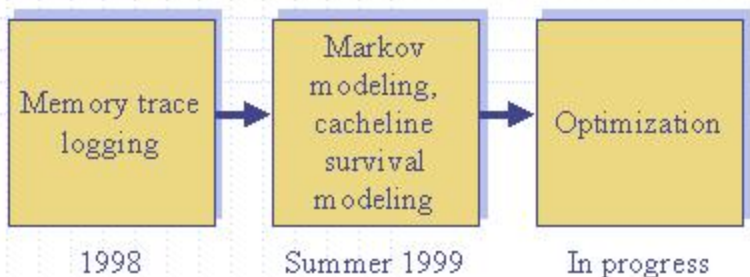
Future IceCAP directions

- ◆ Regression analysis
- ◆ Scalability analysis
- ◆ Dynamic instrumentation
- ◆ Distributed profiling
- ◆ Selective profiling
- ◆ Memory profiling

Memory Profiling

- ◆ Performance is often limited by memory hierarchy
 - Servers: cache capacity, conflicts
 - Desktops: paging
- ◆ Today, we can find out how badly we're doing
- ◆ Challenge: pinpoint what to do to improve
 - Identify data in cache conflicts
 - Use new instructions and architectures
 - "BBT for data"

DLP process



Partial results:

7 hand-optimized structs
in SQL Server 7.5:
1.3% ($\pm 0.2\%$) speedup
on TPC/C benchmark

Known issues:

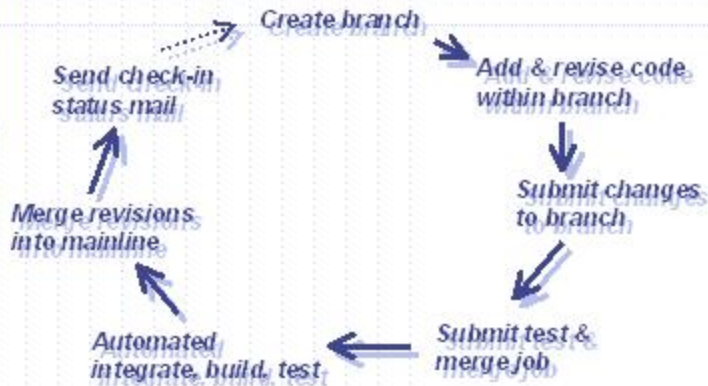
Inheritance
Bit fields
Large structures
Scalability

Collaboration Tools

- ◆ Development teams waste time on a huge scale
 - Check-in windows
 - Broken builds
 - Inefficient, fragmentary quality measurement
 - Disconnected project data
- ◆ We're getting started in exploring solutions
 - Research platform for parallel development
 - Developing projects on top of research platform
- ◆ Big challenge, huge opportunity

Build Lab Toolkit

- Platform for collaboration tools research





Questions?